



Bacteria Counter

In the photo, a laboratory technician is using an instrument called the ATP Photometer to make a rapid and accurate count of the bacteria in a body fluid sample. Produced commercially by SAI Technology Company, a division of Science Applications, Inc., San Diego, California, the ATP Photometer stems from technology originally developed by Goddard Space Flight Center for NASA life-detection missions to other planets.

The instrument provides information on the presence and quantity of bacteria by measuring the amount of light emitted by the reaction between two substances. The substances are ATP—adenosine triphosphate, which is present in all living cells—and luciferase, an enzyme

derived from fireflies which releases light only in the presence of ATP. These reactants are applied to a human body sample—urine, blood or spinal fluid—and the ATP Photometer observes the intensity of the light output, displaying its findings in a numerical readout. Total assay time, including preparation of the body sample, is usually less than 10 minutes; this represents a significant time saving in comparison with the standard laboratory technique involving culture preparation and microscopic examination of the culture.

In addition to medical applications, the ATP Photometer has been successfully employed in such other uses as measuring organisms in fresh and ocean waters, in determining bacterial contamination of foodstuffs, in the beverage industry for biological process control, and in assay of activated sewage sludge.